

AWARD NUMBER: W81XWH-08-2-0196

TITLE: Reintegrating Troops with Mild Traumatic Brain Injury (mTBI) into Their Communities: Understanding the Scope and Timeline of Post-Deployment Driving Problems

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REPORT DATE: October 2015

TYPE OF REPORT: Final

PREPARED FOR: U.S. Army Medical Research and Materiel Command
Fort Detrick, Maryland 21702-5012

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1. REPORT DATE October 2015		2. REPORT TYPE Final		3. DATES COVERED (From - To) 15Sept2008 - 31July2015	
4. TITLE AND SUBTITLE Reintegrating troops with mild traumatic brain injury (mTBI) into their communities: Understanding the scope and timeline of post-deployment driving problems				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER W81XWH-08-2-0196	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S) Erica B Stern, PhD Todd Rockwood, PhD Email: Stern001@umn.edu ; rockw001@umn.edu				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Office of Sponsored Projects, University of Minnesota, Minneapolis, Minnesota 55455				8. PERFORMING ORGANIZATION REPORT	
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES) U.S. Army Medical Research and Materiel Command Fort Detrick, Maryland 21702-5012				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION / AVAILABILITY STATEMENT Approved for public release; distribution unlimited					
13. SUPPLEMENTARY NOTES – NONE					
14. ABSTRACT This study examined the carryover of combat driving behaviors and anxieties onto Service Members' driving on American roads post-deployment to Operation Enduring Freedom/Operation Iraqi Freedom/Operation New Dawn (OEF/OIF/OND) using a drop-off or in place questionnaires. Subject sample did not allow comparison to those not deployed to those conflicts. Exploratory analyses were made across the four groups constituted by the responding 44 Service Members (SMs): no diagnosis (0Dx) (n=6), TBI (n=12), PTSD (n=7), and dual diagnosis (TBI/PTSD) n=19. Additional comparisons were made between 28 Family/Friends matched to their SMs. Even in this small sample some trends were apparent: SMs with TBI/PTSD had significantly more combat driving behaviors and driving related anxieties when driving on US roads. SMs with TBI and TBI/PTSD carried significantly more weapons in their personal vehicles and the two most commonly carried were also the most lethal i.e., gun and knife. Family and friends appear to be aware that driving behavior and driving related anxieties are part of their SM's driving, but also underestimate the severity of these issues. That, combined with SMs' limited concern about their combat driving behaviors is likely to mean that SMs will not specifically seek driving assistance. Instead education on carryover driving and anxieties should be integrated into general clinical care of SMs with TBI or PTSD and into the education of their Family/Friends. Chief limitations were the study's protracted data collection, lack of subjects without deployment experience, and small sample size overall, allowing only tentative findings across groups – although difference between 0Dx and diagnostic groups was consistent across questions.					
15. SUBJECT TERMS Driving, reintegration, traumatic brain injury (TBI), post-traumatic stress disorder (PTSD), carryover					
16. SECURITY CLASSIFICATION OF: U			17. LIMITATION OF ABSTRACT UU	18. NUMBER 38	19a. NAME OF RESPONSIBLE PERSON USAMRMC
a. REPORT u	b. ABSTRACT u	c. THIS PAGE u			19b. TELEPHONE NUMBER (include area code)

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INTRODUCTION:

Service Members (SMs) serving in Operation Enduring Freedom/Operation Iraqi Freedom (OEF/OIF) and Operation New Dawn (OND) have used combat driving maneuvers to avoid roadway threats. These maneuvers are strongly linked to safety and were performed consistently. A regional pilot study by the PI and graduate students (Riley-Chiabotti, Hieb, Welle, **Stern**, 2008; **Stern**, 2009; Christensen, Escobar, Riess, **Stern**, 2009) found that post-deployed Soldiers had high levels of carryover behaviors and anxieties and that these behaviors lasted for at least three months in the post-deployment in the sub-sample that was examined. Reflecting Killgore, Cotting, Thomas, et al's. (2008) finding that general combat trauma influences risky behaviors post-deployment (including risky driving), driving carryover behaviors and anxieties regressed significantly on the level of Soldiers' OIF/OEF driving-related trauma (Polzin, Wenker, **Stern EB**, 2009). USAA, a major insurer of SMs, studied 171,000 deployments (6 months pre, 6 months post) and found significant increase in reported-at-fault crashes from before deployment to return (USAA, 2012).

KEYWORDS: Driving, reintegration, traumatic brain injury (TBI), post-traumatic stress disorder (PTSD), carryover

OVERALL PROJECT SUMMARY: The current CDMRP study used a drop-off-mail-back (or unengaged pickup-mail-back) survey to provide data on the scale, incidence, and timeline of combat-driving behaviors and anxieties among post-deployed SMs with and without traumatic brain injury (TBI), post-traumatic stress syndrome (PTSD) or TBI with post-traumatic stress syndrome (TBI/PTSD). The goal was to compare SMs who were post-deployment to SMs who had not served in OEF/OIF/OND, however all respondents had been deployed OIF/OEF or OND. Participating SMs were asked to handoff a parallel survey to a Family/Friend who provided their perspective on the SMs' driving.

2. KEY RESEARCH ACCOMPLISHMENTS

What were the major goals of the project?

List the major goals of the project as stated in the approved SOW. If the application listed milestones/target dates for important activities or phases of the project, identify these dates and show actual completion dates or the percentage of completion.

Outcomes: This study's SOW stated that the goal was to determine the extent to which combat driving tendencies are carried over into post-deployment driving on American roads by Soldiers with mTBI and those without mTBI, separate driving behaviors associated with military service from those associated with brain injury or deployment, examine the impact of dual diagnosis of mTBI/PTSD on driving carryover, and establish military respondents' self-recognition of driving behaviors relative to an informed third party report, as a measure of self-awareness.

The required tasks listed with SOW were:

Task 1—Obtain IRB approval (ongoing as sites agree to distribute survey):

COMPLETED for Dwight D. Eisenhower Medical Center, FT Gordon, Fox Army Health Center, Redstone Arsenal; Medical Task Force Shelby (MTFS), Camp Shelby; Blanchfield Army Community Hospital, Fort Campbell), and the final site USARIEM. In spite of the time spent gaining sites, subject participation was limited.

Task 2—Hire and train fieldworkers local to sites where Soldiers will be contacted

COMPLETED: Per approved change in planned recruitment efforts, sites did not allow hire or training. Instead, experienced researchers, approved for the work by their supervisors, were recruited to distribute surveys

Task 3—Drop-off of surveys (ongoing recruitment of sites, ongoing distribution to Soldiers):

COMPLETED: Forty-four (n=44) SM surveys were received, entered, checked and analyzed. All had been deployed at least once to OEF, OIF, or OND (e.g., 51% to Iraq, 55% to Afghanistan). There were no SMs to permit comparison of military training to deployment.

SM subjects were distributed across four groups as:

- Neither TBI nor PTSD (0Dx) n= 6
- TBI/post-concussion only (TBI only) (n= 12)
- PTSD only (n=7)
- Dual (TBI/PTSD) n=19

28 of the SMs had a paired survey returned by a Family/Friend (thus additional n=28 Family/Friends)
See that section in OUTCOMES for more information.

Task 4—Data collection by mail and telephone interview:

COMPLETED A dedicated phone number and script was developed for the study, but NO subject opted for the telephone interview.

Task 5—Data entry

COMPLETED: Data entered into SAS and SPSS and double checked/corrected

Task 6—Data management

COMPLETED: Data were checked for logic and incomplete responses and accepted for analyses that allowed group response comparisons

Task 7—Data analysis

COMPLETED for each yearly review and again for this final report. Sample size limited power and allowed only exploratory analysis. All results must be considered tentative

Task 8—Report writing

COMPLETED- CDMRP reports were tardily returned. External reports were primarily presented orally at military or driving related conferences, and used as part of R2D driving recommendation development for military medical facilities.

3. ACCOMPLISHMENTS

SIGNIFICANT RESULTS AND KEY OUTCOMES Statistical significance was set at $p \leq .05$

For SMs:

- **Group Equivalence:** Frequency data were compared using Fisher's Exact Test; interval/ratio data were compared using Analysis of Variance (ANOVA) with follow-up independent t-test to determine where differences existed across comparisons.
 - **Demographics:** There were no significant differences across the four SM groups' age (mean age ranged from 38 to 41 years), sex (all but 2 SMs were male), marital status (86% were married or in a marriage-like relationship), ethnicity (16% were Hispanic/Latino), race (70.5% were white), or education level (91% had at least some college experience).
 - **Military and Combat Experiences:** There were also no significant differences across the groups' pay grades (62% were enlisted), years of military service (mean range across groups was 15.5 to 17.3 years), how often they had driven in convoy during deployment (75%; 58% weekly), frequency that they'd been drivers or passengers outside of the wire or estimated miles ridden per week outside of the wire. The groups also reported similar exposure to improvised explosive devices (IEDs) and artillery/rocket propelled grenades, and similar numbers of vehicle crashes due to enemy fire.
 - **US Driving Since Deployment:** There was no significant difference across groups re miles driven weekly and re. their primary vehicles driven (42% cars, 49% drove SUVs or pick-up trucks). Only 2% of the SMs drove for a living (e.g., taxi, delivery).
 - **Comparisons with statistically significant differences across groups:**
 - 100% of service members with 0Dx or TBI were in *active service*, whereas only 57% and 63% of those PTSD or TBI/PTSD were *active service* ($p=.02$).
 - A larger percentage of TBI/PTSD SMs reported driving through small arms fire more frequently while deployed ($p=.04$).
 - **SUMMARY:** There were no consistent or important differences across groups in terms of demographics or military exposure. The differences (percent in active service and exposure to small arms while deployed) did not appear to create consistent differences or require statistical correction in this exploratory analysis.
- **Driving after return to the US:** Items about the past 30 days driving on U.S. roads formed five scale scores. These were compared using Fisher Exact tests for categorical frequencies and ANOVA followed by independent t-tests for interval/ratio data.
 1. **Driving Violations** (e.g., warnings, tickets for moving violations, vehicle crashes). There were no significant difference in violation items or mean score across the four diagnosis groups (i.e., 0Dx, TBI, PTSD, TBI/PTSD).

There was neither strong nor significant relationship between mean driving behavior scores and mean violation scores or violation items scores.

- 2. Driving behaviors** Twenty common post-deployment driving behaviors were studied, ranked by how consistently they were performed. The items were derived from the literature, interviews with SMs and from data from the earlier regional study of driving and included moving through stop signs or red lights, chasing cars, hypervigilance. See Appendix A- Surveys of SM and Family/Friends.

Significant differences were found among the groups regardless of whether comparisons were made across mean total score across items ($p=.0006$) (Figure 1), or number of items that were rated at the highest levels (i.e., occurring *usually* or *always*) ($p=.0004$) (Figure 2). In both cases, SMs with TBI/PTSD reported the worst driving behaviors.

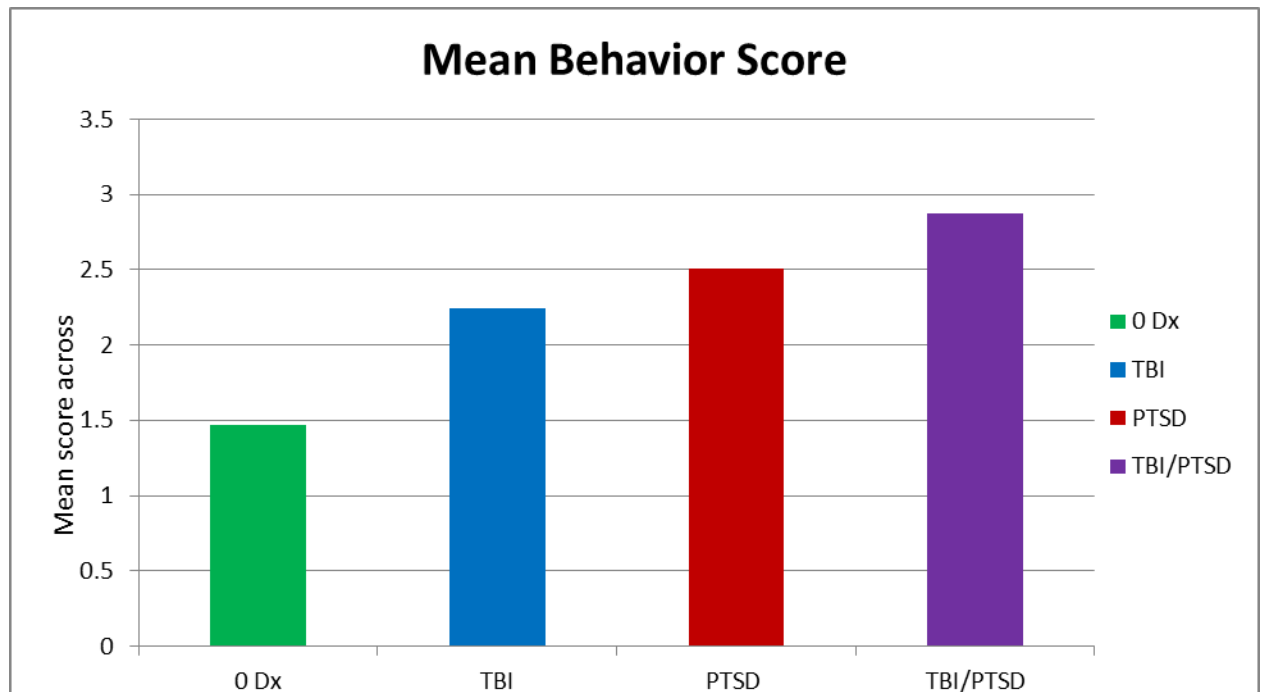


Figure 1 Mean Driving Behavior Scores by Groups

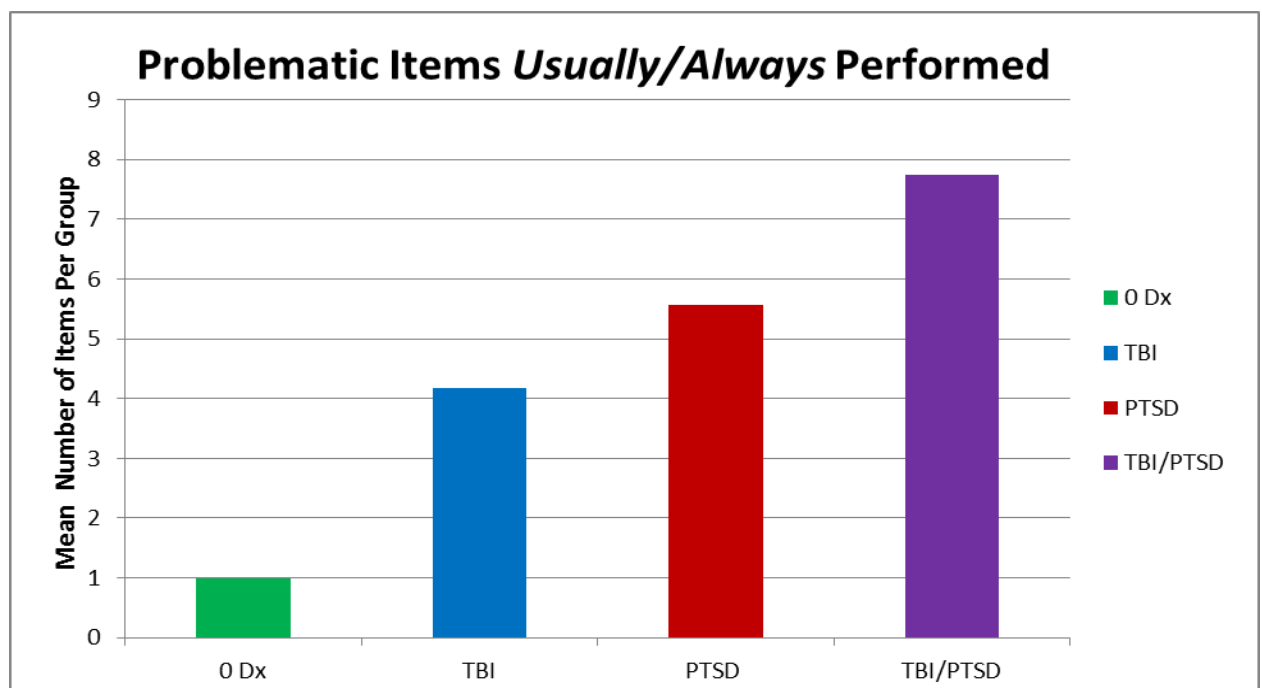


Figure 2 Mean number of Driving Behavior Items Reported as Usually/Always Performed by Group

Problem driving behaviors differed across SM groups for 45% of separate items (i.e., 9/20 items), with TBI/PTSD scores consistently highest (i.e., worst). Items with significant differences were:

- Turned or changed lane without signaling ($p=.004$) with TBI/PTSD reporting this as more common behaviors than both PTSD and 0Dx.
- Intentionally stayed in right lane of multi-lane road ($p=.05$) with TBI/PTSD reporting this as more common than 0Dx.
- Been startled by common road sounds ($p=.02$) with TBI/PTSD reporting this more common than PTSD and 0Dx.
- Ask someone else to drive in situations when SM would typically drive ($p=.02$) with TBI/PTSD reporting this more common than TBI and 0Dx.
- Move to middle of road or onto shoulder to avoid road kill, litter, manhole cover, small potholes, other small objects ($p=.005$) with all 3 diagnoses reporting this more common than 0Dx.
- Driven erratically in a tunnel or under and overpass ($p=.02$) with TBI/PTSD reporting this as more common than TBI and 0Dx.
- Rerouted to avoid overpasses, tunnels, or littered roads ($p=.02$) with TBI/PTSD reporting this more common than TBI and 0Dx.
- Moved to the median or into oncoming traffic ($p=.005$) with TBI/PTSD reporting this more common than PTSD, TBI, and 0Dx.
- Paid excessive attention to things on or around the road ($p=.007$) with TBI/PTSD reporting this more common than TBI and 0Dx.

SM groups differed significantly in how they believed their diagnosis affected their post-deployment driving. Only SMs with 0Dx believed that deployment neither improved nor reduced their driving skill. Thirty-three percent (33%) of SMs with TBI and 43% with PTSD believe that they *drove worse* due to deployment whereas 79% of SMs with TBI/PTSD believed this ($p<.0001$).

There was no evidence that driving behaviors were related to personal beliefs that item behaviors were inherently safe or dangerous (non-parametric correlations -Spearman rho- were neither significant nor large).

SUMMARY: Problem driving behaviors differed across groups for 45% of study's items, with SMs with TBI/PTSD scoring worst consistently in terms of numbers of behaviors and scores (which included element of frequency). The dual diagnosis may potentiate the likelihood of problem driving behaviors. Nearly 80% of the group appears to recognize that their deployment (although perhaps not their diagnosis) contributes to this. The current results could be used to reduce the numbers of surveyed behaviors to allow for clinical use of a revised questionnaire.

3. **Driving related anxieties** (i.e., anxiety was assessed during 14 driving actions, such as driving near road trash, having another car cut in front, being stopped at a stop light). There were significant differences across the groups for both the mean total score across items ($p=.0002$) (Figure 3), and the number of items that were rated at the highest levels (i.e behaviors that made them feel somewhat or very uncomfortable, anxious, or angry) ($p=.0003$) (Figure 4). Mean anxiety scores across items was similar for SMs with TBI/PTSD and PTSD, but both groups had significantly worse driving related anxieties than did SMs with TBI only or 0Dx.

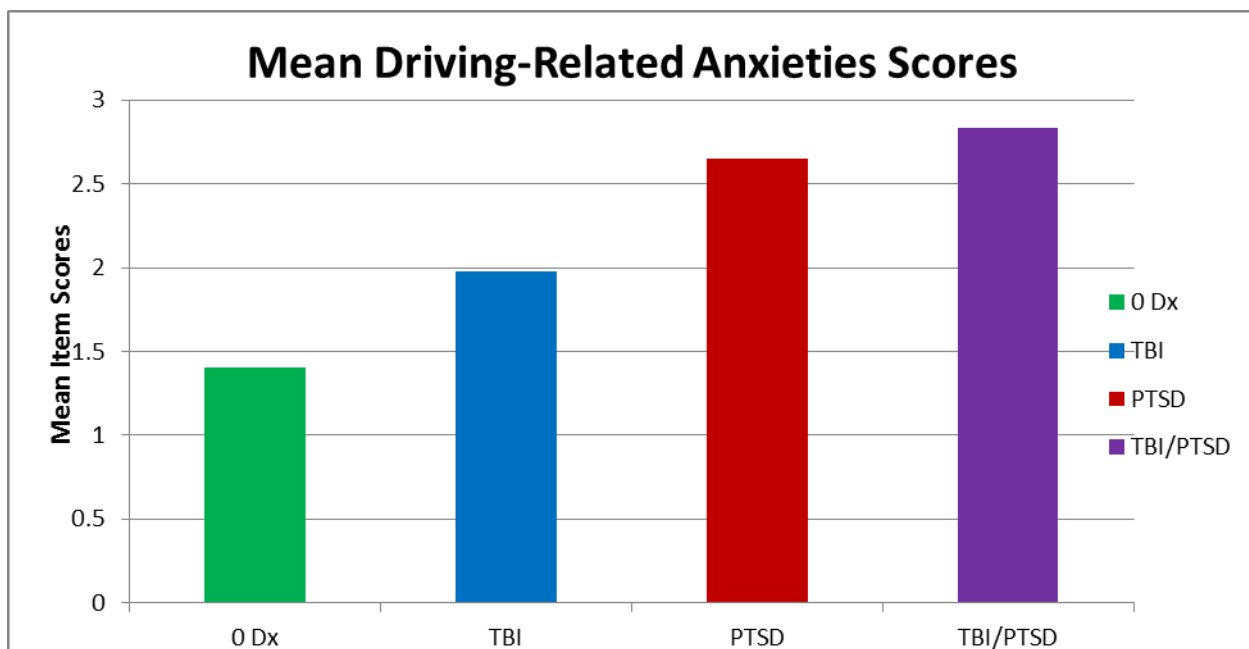


Figure 3 Mean *Anxiety Related Driving* Scores

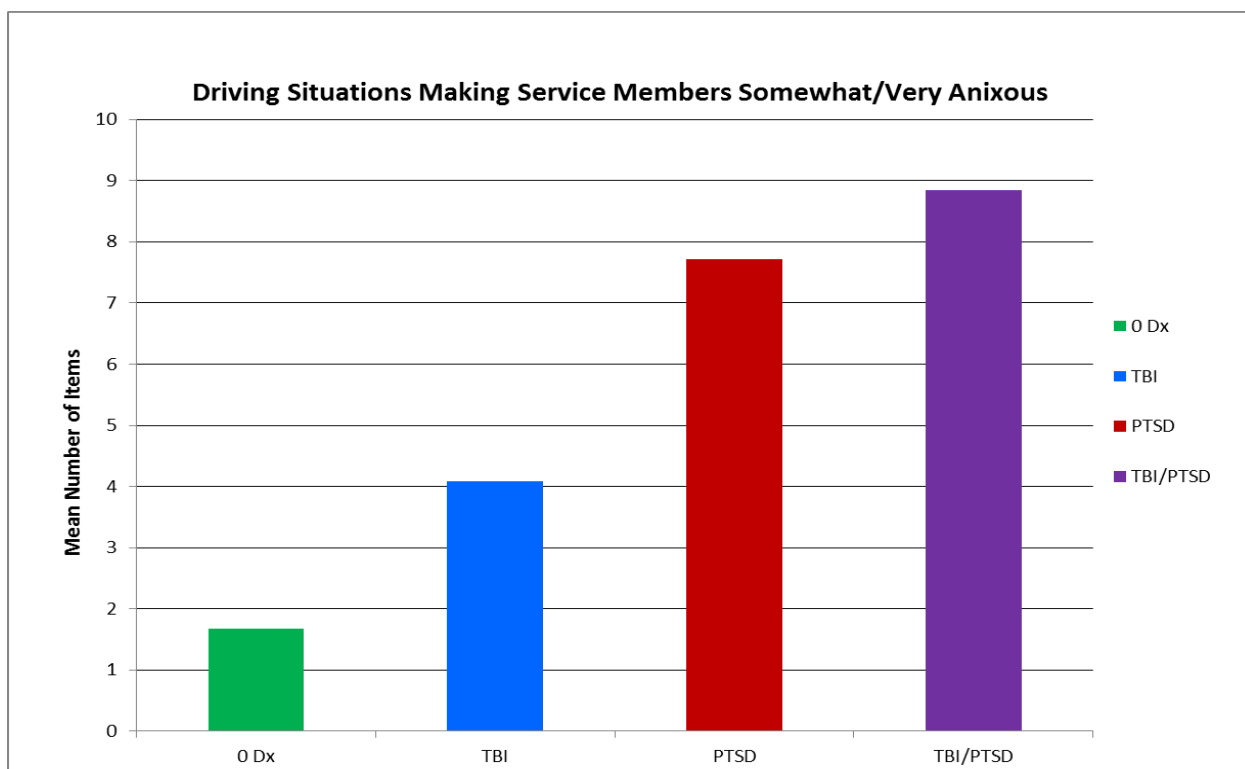


Figure 4 Driving situations making Service Members *Somewhat or Very* Anxious

Groups differed significantly on 86% of the driving-related anxieties (i.e., 12/14 items), with SMs with TBI/PTSD and with PTSD consistently demonstrating the worst score. SMs with TBI and 0Dx never reported the highest mean value of anxiety. Anxiety items with significant differences across groups were:

- Driving:
 - in ethnically diverse areas ($p=.003$), with PTSD only being worse than TBI and 0Dx
 - where there are small trucks or vans ($p=.006$), with TBI/PTSD worse than TBI and 0Dx
 - through tunnels or under overpasses ($p=.006$), with PTSD worse than TBI and 0Dx
 - in slow or stop-and-go traffic ($p=.015$), with PTSD only being worse than 0Dx
 - near parked cars ($p=.0009$), with TBI/PTSD being worse than TBI and 0Dx
 - at high speeds (over 55) even if within the speed limit ($p=.02$), with TBI/PTSD worse than TBI and 0Dx.
- When:
 - other cars approach quickly ($p=.0003$) with PTSD worse than TBI and 0Dx
 - your car gets boxed-in ($p=.015$) with TBI/PTSD worse than TBI and 0Dx
 - other cars pass ($p=.037$) with PTSD worse than TBI and 0Dx
 - another car cuts in front ($p=.002$) with TBI/PTSD worse than TBI and 0Dx
 - a car pulls between SM's car and another with whom they are travelling ($p=.002$) with TBI/PTSD worse than TBI and 0Dx
 - stopped at a stop light ($p=.0008$) with TBI/PTSD worse than TBI and 0Dx

When asked a global question about general driving anxiety, SMs with TBI/PTSD were all anxious to some degree. Higher levels of anxiety (i.e., *anxious* or *very anxious*) were reported exclusively by SMs with TBI only (50%) and TBI/PTSD (58%). The difference across the 4 groups was $p<.0001$.

Mean driving anxieties and driving behaviors were related strongly and significantly for each group (0Dx, Pearson $r=.83$, $p=.04$; TBI, $r=.88$, $p=.0002$; PTSD $r=.90$, $p=.005$; TBI/PTSD $r=.73$, $p=.0003$), indicating that level of driving anxiety may predicts levels of behaviors.

SMs were bothered about their anxieties to differing degrees ($p<.001$) with 33% of those with 0Dx bothered and 42% of those with TBI bothered. Seventy-five percent (75%) of SMs with PTSD and 98% of those with TBI/PTSD were bothered by their driving related anxieties.

SUMMARY

Driving anxieties were strongly and positively associated with driving behaviors, but it is unclear if the behaviors are considered a strategy of addressing the behaviors or if they, to some degree, cause the anxieties. Although general report of anxiety while driving is seen across groups, the highest levels of general anxiety were reported by SMs with TBI and TBI/PTSD. Interestingly, SMs may not be 'bothered' by their anxiety level, and clinicians may wish to assess this area, as SMs may not bring it up for treatment consideration.

- 4. Weapons (i.e., gun, knife, pepper spray, Taser, bat/club) carried in SM's privately owned vehicles (POV)** Groups did not differ significantly in the total number of weapons carried in the past 30, however more SMs with TBI and TBI/PTSD carried lethal weapons. Thus, guns were carried by 50% of SMs with TBI and by 42% of SMs with TBI/PTSD (Figures 5 and 6). Similarly knives were carried by 60% of SMs with TBI and 53% of SMs with TBI/PTSD and 43% of SMs with PTSD.

- Fewer than 20% of 0Dx SMs carried any weapon, except for baseball bats/clubs (33%). When all weapons are considered, SM's with 0Dx carried less than 1 weapon each (Mean=.67, $sd=1.21$, Median=0 weapons), whereas those with one or more of the studied diagnoses carried, on average, at least 1 weapon: SMs with TBI carried 1.33 ($sd=1.07$, Median=1.00), SMs with PTSD carried 1 ($sd=1$, median=1.00) and SMs with TBI/PTSD carried 1.42 ($sd=1.2$, median=1.0). No responding SM reported carrying an explosive/grenade.

SUMMARY

It is unclear how often SMs carry weapons in their vehicle before deployment but from this small sample SMs with diagnoses associated with increased impulsivity and poorer executive functioning (e.g., PTSD, TBI, or TBI/PTSD) are commonly carrying these dangerous items.

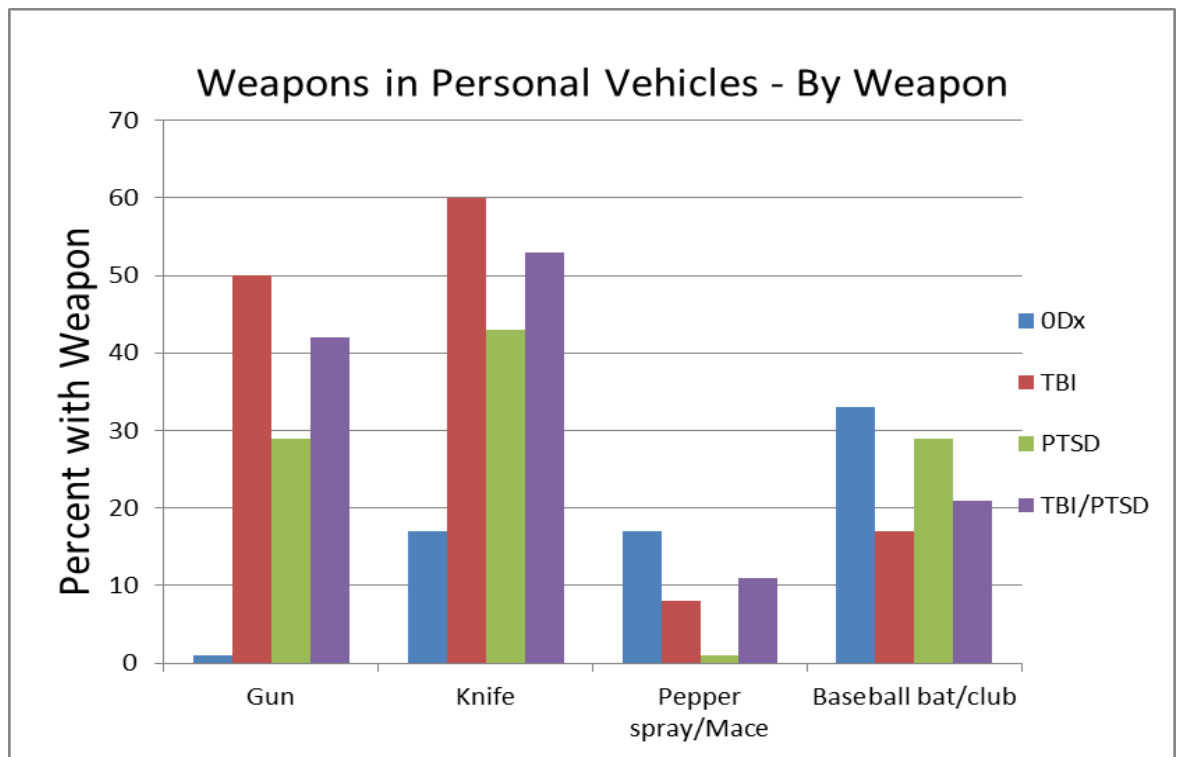


Figure 5. Percent of Each Type of Weapon Carried by Service Members in Personal Vehicle

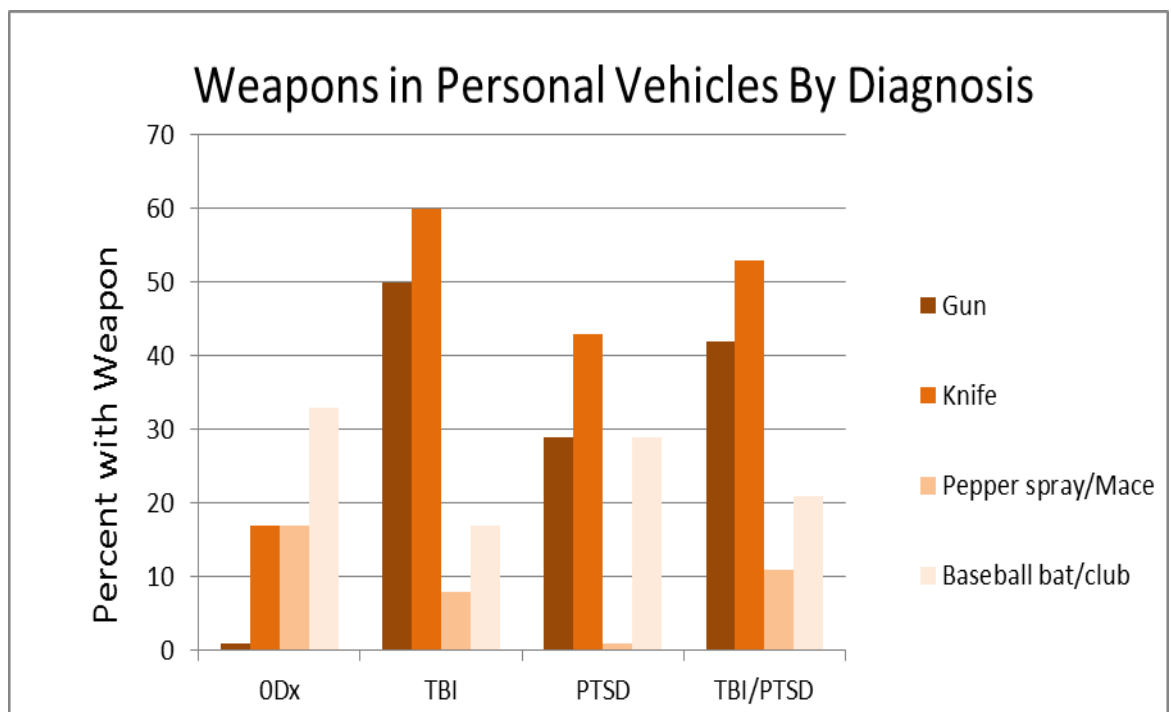


Figure 6. Percent of Each Group of Service Members Carrying Weapon in Personal Vehicle

For Concurrence between Family/Friends and Service Members

- **Family/Friends Demographics:** Eighty –one percent of respondents were spouses/partners, 89% were female, 19% were Hispanic/Latino, and 81% were White. Thirty-three percent were themselves in military service. All had driven with the SM at least 1 day a week, and 89% drove with the SM at least 2-3 times a week. Twenty-two percent drove with their SM daily. In the prior 30 days, they'd ridden with the SM for a mean of 527 miles (sd =1218 miles). Thus, all could be considered knowledgeable about their SM's driving.

The 28 Family/Friends commented on: 4 SMs with ODx, 9 SMs with TBI, 4 SMs with PTSD, and 11 SMs with TBI & PTSD.

- **Driving on return to the US:** SMs' responses to items for the past 30 days on U.S. roads were compared to their Family/Friends' report of those activities. Small sample size left insufficient power to detect differences between SMs and Family/Friends across diagnoses. Thus, analyses of differences between Friends/Family and SMs were performed using paired t-tests and Fisher's exact tests of the whole paired sample.
 1. **Violations:** SM's had few violations in the prior 30 days, and Friends/Family were accurate in their report of this.
 2. **Driving behaviors:** Across 100% of the items, Family/Friends underestimated their SMs driving problems. This underestimate reached statistical significance in 60% of the individual driving behavior items (i.e., 12/20 items), underestimating the frequency of the SM's:
 - Driving:
 - through stop signs ($p=.04$),
 - through a red light ($p=.03$),
 - close to a lead car ($p=.03$),
 - slower than other cars ($p=.01$),
 - in the middle of the road ($p=.02$),
 - erratically in a tunnel or underpass ($p<.0001$),
 - Being startled by common road sounds ($p=.004$),
 - Asking someone else to drive in situations when the SM would have normally driven ($p<.0001$),
 - Rerouting to avoid tunnels/underpass/littered road ($p<.0001$),
 - Moving to shoulder to bypass slow or stalled traffic ($p=.04$),
 - Yelling or making rude gestures at other drivers ($p=.01$),
 - Paying excessive attention to things on or around the road ($p=.003$)

The same underestimation was seen in the mean frequency across all driving behaviors ($p=.0004$), as well as in the mean number of behaviors that SMs reported as happening often (i.e., *usually or almost always*) ($p=.005$).

SUMMARY: Family and Friends underestimate the frequency and consistency of aberrant driving behaviors that reduce the safety of their SM's driving, and thus are less reliable reporters and less likely to effectively intervene with the problem without guidance.

3. **Driving related anxieties:** Family and Friends significantly underestimated their paired SMs for 79% of the driving-related anxiety items (i.e., 11/14 items). These included the level of anxiety:
 - While Driving:
 - near unexpected items on/near the road ($p=.04$)
 - in ethnically diverse areas ($p=.01$)
 - where there are small trucks or vans ($p=.003$)
 - through tunnels or underpasses ($p<.0001$)
 - at dusk or night ($p<.0001$)
 - at high speed even if within the speed limit ($p=.03$)
 - When:
 - other cars approach the SM's car quickly ($p=.04$)
 - the SM's car gets boxed in ($p=.005$)

- another car cuts in front of the SM ($p=.03$)
- a car pulls between the SM and a car that they are following ($p=.03$)
- the SM is stopped at a stop light ($p=.007$)

Underestimation was also seen in the mean level of driving related anxiety that SMs had ($p=.02$), and the number of items that left SMs feeling *somewhat or very* anxious ($p=.03$).

Family/Friends accurately estimated the amount that the SM's anxiety bothered their SM.

SUMMARY: Whereas Family and Friends recognize the level that anxiety bothers their SM, they underestimate the frequency and outcomes of anxiety provoking driving behaviors. This is likely to interfere with their initiating any efforts to reduce the anxieties, and limit their understanding of a behavior that the SM might use to reduce a specific behavior. For example, an SM's consistent 'rolling stops' or driving in the middle of the road was often interpreted as 'arrogance' or 'entitlement' in the survey's open ended comment section. This reduced perception of anxiety thus may contribute to Family and Friends being less likely to effectively intervene with their SM without some clinical guidance.

- 4. Weapons:** Family/Friends accurately estimated the number of weapons kept by their SM in the POV.

• **OUTCOME CONCLUSIONS:**

Limitations: The small sample size (SM $n=44$; paired SM/FF= 28) and absence of non-deployed/non-brain injured SMs, means that the investigators could not differentiate between impact of military ethos and that of deployment. All comparisons across groups must be considered tentative.

Finding 1 Violations: SMs had no difference in their violations across groups. USAA's study (USAA, 2012) showed a rise in reported at fault crashes at 6 months post- deployment. The current study sample responded to the survey a mean of 19 to 39 months post deployment. It may be that differences in violations exist, but are not demonstrated in these analyses due to the study SMs' long duration post-deployment, the short time period studied (i.e., 30 days), and the rarity of violations in any population.

Finding 2: Behaviors/Anxieties: SMs with TBI/PTSD consistently demonstrated the most frequent behaviors and largest number of severe driving behavior problems. SMs with TBI/PTSD and PTSD reported the worst driving related anxieties and the largest numbers of the most severe anxiety problems. The amount to which they were bothered by these anxieties may be more associated with the TBI diagnosis as demonstrated by 98% of SMs with TBI, 100% of those with TBI/PTSD reporting being bothered by their anxieties.

The current report's sample was larger than prior ones and allowed us to differentiate across the 4 groups, the significantly greater scores in the TBI/PTSD and PTSD groups supports prior research associating several driving problems and driving related anxieties with a PTSD diagnosis (Kuhn, Drescher, Ruzek, and Rosen, 2010; Lew et al, 2011; Sayer et al., 2010).

The single item 'chasing cars' did not discriminate between groups, failing to support findings in the literature that strongly related this behavior to PTSD (Kuhn, Drescher, Ruzek, and Rosen, 2010).

Finding 3: Weapons: SMs across groups carried similar numbers of weapons, but the highest frequency of the most deadly weapons, i.e., guns and knives, were carried by SMs with TBI and with TBI/PTSD. This is disconcerting when one recognizes that TBI (the diagnosis shared by the two groups) is associated with impulsivity. The combined presence of impulsivity and a deadly weapon seems a recipe for problems. Although in total, a similar percentage of SMs with ODx carried a weapon, those who did this favored the lower risk, less lethal mace/pepper spray, Taser, or baseball bat/club. Discussion of weapons in vehicles should be a discussion with SMs and family.

Finding 4 Family and Friends' knowledge of their SM's driving behaviors/anxieties: Comparisons of SMs and Family/Friends ($n=28$ pairs) consistently showed that Family/Friends know that SMs have driving behavior and anxiety problems, but underestimate the frequency and severity of these problems. These results are similar to those found by Hieb's study (2008) of a normal returning Company of SMs. It remains unclear Family/Friends do not recognize behaviors/anxieties, or if they are in a state of denial of these issues, or if SMs

are less likely to demonstrate behaviors/anxieties when *Family/Friends* are in the vehicle and thus Family/Friends are underexposed.

Finding 5 Clinical Suggestions: In spite of the small sample, there are indicators that SMs with TBI, PTSD, or TBI/PTSD have patterns of driving behaviors and anxieties that differ from those with no diagnosis, and that these may not be fully realized by Family/Friends. SMs with TBI/PTSD have the greatest documented need for programs to address anxiety, driving behaviors, and the danger associated with weapons in POV. Such programs should not expect SMs or their Family/Friends to seek out this help. It appears that education for Family/Friends and SMs must explicitly address these issues. Data from persons who have not been deployed will clarify what part of these issues may be associated with military ethos rather than deployment or injury.

DISSEMINATION

Data was documented and action encouraged via multiple presentations to public via radio, newspaper interviews, and through papers at military and occupational therapy conferences/work groups. See complete list in Products section (#6). Dissemination also occurred through PI's participation in task group to determine return to work assessments ensured consideration and inclusion of behaviors and anxieties. Group members then spread the ideas to their facilities. Driving behaviors/anxiety challenges were incorporated into two commonly used driving simulation platforms. What had been questioned as a figment at the start of the project was recognized as a real area requiring treatment.

There was also production of information for SMs and Family/Friends through Army Office of the Surgeon General's R2D and USAA which now educates both groups on the issues and simple ways to begin resolution. Persons are also directed to available treatment options, for continuing problems.

4. IMPACT

When the study was initiated many in Army leadership and clinical practice did not recognize the problems associated with return-to-driving, absent a physical injury. The major technology transfer involved incorporation of post-deployment driving behavior/anxiety triggers in at least two driving simulator platforms used by military/VA treatment facilities and research efforts.

5. CHANGES/PROBLEMS

The major problem throughout the entire course of the study was the difficulty gaining access to sites and then gaining participation of SMs. This both delayed the time-sensitive study and required additional costs to PI/Co-PI salary. In spite of numerous extensions, and continued efforts to gain this participation, even at its conclusion, the study had an a sample size that permits only tentative conclusions.

There were no changes in human subject risk.

6. PRODUCTS/OUTCOMES : See below

PUBLICATIONS: * indicates refereed review

- 1.*. Zinzow, HM, Brooks, J, **Stern, EB** (2013). Driving-related anxiety in recently deployed service members: Cues, mental health correlates, and help-seeking behavior. *Military Medicine*. 178, (3), pp. e357-e361(5)
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<http://atwar.blogs.nytimes.com/2012/04/24/insurer-details-higher-risks-for-drivers-after-deployment/>
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- 1.* **Stern, EB**, Rockwood T. (2014) *Driving behaviors and anxieties of military service members with and without traumatic brain injury/post-traumatic stress disorder after service in Iraq or Afghanistan* 16th International Congress of World Federation of Occupational Therapists, Yokohama, Japan (20 minute paper)
2. **Stern, EB** (2013) *PostDeployment Reintegration: Shifting Gears*, Virginia Military/Civilian Transportation Safety Workshop, Joint Base Langley-FT Eustis (Invited presentation)

3. **Stern, EB** (2012) *Shifting Gears: Driving reintegration following deployment, concussion, and PTSD*. Distinguished Visiting Professor at the Southern Regional Medical Command (SRMC) TBI Grand Rounds, San Antonio Military Medical Center, San Antonio, TX. Invited presentation.
4. **Stern, EB** (2012) *Challenges Post-Deployment: A New Perspective on Distracted Driving*. Texas Distracted Driving Summit, presented by USAA in association with the Texas Department of Transportation and Shriners Hospitals for Children. San Antonio, TX. Invited paper.
- 5.* **Stern, EB** (2012). *Assessment Protocols for Combat Veterans and Driving: A tour of resources and current projects*. Driving Through the Lifespan: Evidence and Practice Steering the Way. American Occupational Therapy Association, Annual Meeting, Indianapolis, IN. Institute.
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- 7.* **Stern, E** Chiabotti, L, Christensen E, Clair E, Day A, Escobar O, Hieb A, Polzin J, Riess J, Schleisman K, Wenker K, Center B. (2010). Shifting gears: Post-deployment driving behaviors and anxieties after military service in Iraq or Afghanistan. American Occupational Therapy Association, Orlando. 90 min short course presentation
- 8.* Erickson, M and **Stern, E** (2009). When Johnny and Jane Come Marching Home: Civilian OT's role in serving returning military personnel and their families. MOTA, Minneapolis, MN. 1 hr. presentation
- 9.* **Stern, E**, Rockwood T (2009) Post-deployment driving problems: Survey of scope and timeline for post-deployment Soldiers with and without mild traumatic brain injury. Military Health Research Forum, Kansas City, MO. Briefing.
10. **Stern, E** (2009) Post-deployment Driving Behaviors and Driving-related Anxieties. Driving Assessment Conference, Defense Centers of Excellence for Psychological Health and Traumatic Brain Injury, Washington, DC. 30 min paper and working participation
11. **Stern, E** (2008). Shifting Gears: Post Deployment Driving After Service in Iraq and Afghanistan. University of Toledo Occupational Therapy Program's Pi Theta Epsilon Honor Sorority and Student Occupational Therapy Association. Toledo, OH Invited Lecture

RESEARCH POSTERS

- 1* Babulal G, Korpela C, Lane T, Schwartz A, **Stern EB** (2010 MOTA; Reprised 2011 AOTA). Developing Soldier-Accepted Driving Resources for Post-Deployment Combat Driving Behaviors and Related Driving Anxieties. Minnesota Occupational Therapy Association (MOTA) Reprised at American Occupational Therapy Association National Conference (Philadelphia) Research Poster.
- 2* **Stern, E** Chiabotti, L, Christensen E, Clair E, Day A, Escobar O, Hieb A, Polzin J, Riess J, Schleisman K, Wenker K, Center B. (2010). Shifting gears: Post-deployment driving behaviors and anxieties after military service in Iraq or Afghanistan. World Federation of Occupational Therapy Association, Chile. Primary Poster. Reprised at MOTA Conference 2010, Duluth, MN.
- 3* **Stern, E**, Rockwood T (2009) Post-deployment driving problems: Survey of scope and timeline for post-deployment Soldiers with and without mild traumatic brain injury. Military Health Research Forum, Kansas City, MO.

INTERNET SITE

Consultant and author (2014-2015) Interactive online self-help program for reintegration post-deployment to Iraq/Afghanistan – working title: *Shifting Gears: Reintegration after Deployed Driving*. Created for USAA.

OTHER ACHIEVEMENTS:

Development of public education materials for SMs and Family/Friends, Available through Office of the Army Surgeon General's R2D website - <http://armymedicine.mil/Pages/R2D-Post-Combat-Driving.aspx>

5. PARTICIPANTS & OTHER COLLABORATING ORGANIZATIONS

Collaborating Sites:

Dwight D. Eisenhower Medical Center, FT Gordon, Fox Army Health Center, Redstone Arsenal; Medical Task Force Shelby (MTFS), Camp Shelby; Blanchfield Army Community Hospital, Fort Campbell), and the final site USARIEM.

Collaborating individuals:

PI: Erica Stern

Project role: supervised all graduate students (unpaid), collaborated with PI Rockwood on data check and analysis, and performed all reports.

CoPI: Todd Rockwood

Project role – double check all data, analyze same. Collaborate with Stern on Analysis. Worked across project. No change from previously accepted documents.

Graduate Students – All students were unpaid. Students worked for 2 years on data collection and/or data entry and interpretation of data analysis.

2015: Kimberly A. Klein, Lauren R. Manaugh, & Hailey A. Meier, Nicole Halvorson, Lynanne MacDonald, & Melissa Sowers, Alyssa Bielawski, Darcy Collins, Erika Emmons.

2014: Elizabeth Collins, Lisa Duberowski, Melanie Feddema, & Willow Svien, Emily Wendorff, Melissa Degen, Mark Falvey, Elizabeth Martens, & Jim Landsberger,

2013 Romina Takimoto, Joni Strandquest & Lauri Stumph,

2010 Ganesh Babulal, Craig Korpela, Tony Lane, Andy Schwartz

2009 Jessie Bilitz, Kayla Wenker, Kathryn Schleisman, Emma Clair, Amy Day

8...SPECIAL REPORTING REQUIREMENTS: None

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Kuhn, E., Drescher, K, Ruzek, J, Rosen, C (2010). Aggressive and unsafe driving in male veterans receiving residential treatment for PTSD. *Journal of Traumatic Stress*, 23, 399-402.

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Riley-Chiabotti L, Hieb A, Welle L, Stern EB (2008) From Willmar/St Paul To Iraq/Afghanistan: Report of two current studies of Minnesota drivers. Minnesota Occupational Therapy Association, St Cloud, MN.

Sayer, N.A., Noorbaloochi, S., Frazier, P., Carlson, K., Gravely, A., Murdoch, M. (2010). Reintegration problems and treatment interests among Iraq and Afghanistan combat veterans receiving VA Medical Care. *Psychiatric Services*, 61, 589-597.

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9. APPENDICES

Appendix A- Surveys of SM and Family/Friends.



Driving Post-Deployment: A Survey of Military Personnel



Study Conducted By:
Program in Occupational Therapy
University of Minnesota

Sponsored By:
Department of Defense's
Congressionally Directed Medical Research Program

Your participation in this survey is voluntary and
you may choose to skip any item you do not wish to answer.

Part 1: Your Service History

Q1 What is your branch of military service?

- 1 ☐ Air Force
- 2 ☐ Army
- 3 ☐ Marines
- 4 ☐ Navy
- 5 ☐ Coast Guard

Q2 Are you Active Service?

- 1 ☐ No → Q2a If No, are you: 1 ☐ Reserve
- 2 ☐ Yes 2 ☐ National Guard
- 3 ☐ No longer in service

Q3 What is your current military paygrade?

- 1 ☐ E-1 to E-6
- 2 ☐ E-7 to E-9
- 3 ☐ WO-1 to WO-5
- 4 ☐ O-1 to O-3
- 5 ☐ O-4 to O-10

Q4 How many years have you been in military service?

|_|_| Years service

Q5 Have you ever been deployed to Iraq or Afghanistan?

- 1 ☐ No → Skip to Part 3 on Page 3
- 2 ☐ Yes

Q6 Where was your most recent deployment?

- 1 ☐ Iraq (OIF)
- 2 ☐ Iraq (OND)
- 3 ☐ Afghanistan (OEF)
- 4 ☐ Someplace else, Describe: _____

Q7 Please provide the information regarding all of your deployment(s) to Iraq and Afghanistan.

	Iraq (OIF)	Iraq (OND)	Afghanistan (OEF)
a. Total number of deployments	_ _	_ _	_ _
b. Total months deployed	_ _ _	_ _ _	_ _ _
c. How long since your last deployment ended (months)	_ _ _	_ _ _	_ _ _

Q8 Thinking specifically about your most recent deployment to either Iraq or Afghanistan, how long was your last deployment?

|_|_| Months

Part 2: Driving During Your Last Deployment to Iraq or Afghanistan

Please answer the following about your experiences in Land Vehicles during your most recent deployment to Iraq or Afghanistan.

Q9 During your most recent deployment in OIF, OND or OEF were you ever involved in convoy duty associated with the transportation of materials, supplies or troops?

- 1 ☐ Yes → If Yes, How often? 1 ☐ Weekly
2 ☐ No 2 ☐ Monthly
3 ☐ Less often than that

Q10 The following items are about your driving experiences during an average or typical week during your most recent deployment to OIF, OND, OEF.

	NEVER	1-2 TIMES A WEEK	3-4 TIMES A WEEK	5+ TIMES A WEEK
a. How often were you a <u>passenger</u> in a land vehicle off-base or outside the wire? (If most of this was in a tank please check this box <input type="checkbox"/>)	<input type="checkbox"/> ₀	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃
b. How often did you <u>drive</u> a land vehicle off-base or outside the wire? (If most of this was in a tank please check this box <input type="checkbox"/>)	<input type="checkbox"/> ₀	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃

Q11 Combining your travel as either a passenger or a driver, how many miles of ground travel did you have off-base or outside the wire, during an average week?

- 1 ☐ 1-25 miles a week
2 ☐ 25-50 miles a week
3 ☐ 50-75 miles a week
4 ☐ 75-100 miles a week
5 ☐ 100 or more miles a week

Q12 The next items are about enemy action. Please indicate how many times each of them occurred during the entire time of your most recent deployment to OIF, OND, or OEF:

How many times:	0 NEVER	1-2 TIMES	3-4 TIMES	5-6 TIMES	7+ TIMES
a. Did your vehicle <u>drive through</u> small arms fire	<input type="checkbox"/> _0	<input type="checkbox"/> _1	<input type="checkbox"/> _2	<input type="checkbox"/> _3	<input type="checkbox"/> _4
b. Were you in a vehicle that was <u>near but not caught in</u> an IED explosion?	<input type="checkbox"/> _0	<input type="checkbox"/> _1	<input type="checkbox"/> _2	<input type="checkbox"/> _3	<input type="checkbox"/> _4
c. Were you in a vehicle when it was caught in an IED explosion?	<input type="checkbox"/> _0	<input type="checkbox"/> _1	<input type="checkbox"/> _2	<input type="checkbox"/> _3	<input type="checkbox"/> _4
d. Were you in a vehicle that was exposed to artillery, RPG, mortar, or similar fire?	<input type="checkbox"/> _0	<input type="checkbox"/> _1	<input type="checkbox"/> _2	<input type="checkbox"/> _3	<input type="checkbox"/> _4

Q13 In total during your last deployment how many times did your vehicle crash or overturn for any reason?

|_|_|_| Number → How many of these were related to enemy action?

1 ☐ None
 2 ☐ A Few
 3 ☐ Some
 4 ☐ Most
 5 ☐ All

Q14 After your most recent deployment to Iraq or Afghanistan ended, how soon did you start driving in America?

1 ☐ As soon as I returned
 2 ☐ Within a week of my return
 3 ☐ Within a few weeks of my return
 4 ☐ Within a month of my return
 5 ☐ Within 1 to 2 months of my return
 6 ☐ After 3 months or more

Part 3: Driving During the Past 30 Days in America

Q15 In the past 30 days, how often have you driven a privately owned vehicle?

0 ☐ Have not driven → Skip to Part 4 on Page 7
 1 ☐ Less than 1 day a week
 2 ☐ 1-3 days a week
 3 ☐ 4-6 days a week
 4 ☐ Everyday

Q16 In the past 30 days, how many miles have you driven?

|_|_|_|_| Miles

Q17 Which of the following do you usually drive?

1 ☐ Motorcycle
 2 ☐ Car
 3 ☐ Mini-Van
 4 ☐ SUV or Pick-Up Truck
 5 ☐ Other - Describe: _____

Q18 Not including commuting to and from work, is driving part of your job? For example, do you work as a truck driver, delivery person, or have similar job?

1 ☐ No

2 ☐ Yes → If Yes, how many miles have you driven as part of your job in the past 30 days? |_|_|_|_| Miles

Q19 In the past 30 days, how often did you:

	0 NEVER	1 ONCE	2 TWICE	3+ TIMES
a. Receive a warning for a moving violation	<input type="checkbox"/> _0	<input type="checkbox"/> _1	<input type="checkbox"/> _2	<input type="checkbox"/> _3
b. Receive a ticket for a moving violation	<input type="checkbox"/> _0	<input type="checkbox"/> _1	<input type="checkbox"/> _2	<input type="checkbox"/> _3
c. Hit another car or person while driving	<input type="checkbox"/> _0	<input type="checkbox"/> _1	<input type="checkbox"/> _2	<input type="checkbox"/> _3
d. Get hit by another vehicle while driving	<input type="checkbox"/> _0	<input type="checkbox"/> _1	<input type="checkbox"/> _2	<input type="checkbox"/> _3

Q20 Thinking about the past 30 days, how often you have done each of the following? (If you work in emergency services, police, fire, ambulance, etc., please respond based on your personal driving, not on work related driving.)

	ALMOST NEVER	RARELY	SOMETIMES	USUALLY	ALMOST ALWAYS
a. Made turns or lane changes without signaling	<input type="checkbox"/> _1	<input type="checkbox"/> _2	<input type="checkbox"/> _3	<input type="checkbox"/> _4	<input type="checkbox"/> _5
b. Intentionally stayed in the left lane of a multi-lane road or highway	<input type="checkbox"/> _1	<input type="checkbox"/> _2	<input type="checkbox"/> _3	<input type="checkbox"/> _4	<input type="checkbox"/> _5
c. Cut in and out of traffic	<input type="checkbox"/> _1	<input type="checkbox"/> _2	<input type="checkbox"/> _3	<input type="checkbox"/> _4	<input type="checkbox"/> _5
d. Driven through a stop sign	<input type="checkbox"/> _1	<input type="checkbox"/> _2	<input type="checkbox"/> _3	<input type="checkbox"/> _4	<input type="checkbox"/> _5
e. Driven through a red light	<input type="checkbox"/> _1	<input type="checkbox"/> _2	<input type="checkbox"/> _3	<input type="checkbox"/> _4	<input type="checkbox"/> _5
f. Intentionally driven very close to the car in front of you	<input type="checkbox"/> _1	<input type="checkbox"/> _2	<input type="checkbox"/> _3	<input type="checkbox"/> _4	<input type="checkbox"/> _5
g. Driven much faster than the other cars on the road	<input type="checkbox"/> _1	<input type="checkbox"/> _2	<input type="checkbox"/> _3	<input type="checkbox"/> _4	<input type="checkbox"/> _5
h. Driven much slower than the other cars on the road	<input type="checkbox"/> _1	<input type="checkbox"/> _2	<input type="checkbox"/> _3	<input type="checkbox"/> _4	<input type="checkbox"/> _5
i. Worn a seatbelt when in a car, truck, SUV, etc.	<input type="checkbox"/> _1	<input type="checkbox"/> _2	<input type="checkbox"/> _3	<input type="checkbox"/> _4	<input type="checkbox"/> _5
j. Focused intently on the people who are driving or riding in other vehicles	<input type="checkbox"/> _1	<input type="checkbox"/> _2	<input type="checkbox"/> _3	<input type="checkbox"/> _4	<input type="checkbox"/> _5
k. Been startled at common road sounds	<input type="checkbox"/> _1	<input type="checkbox"/> _2	<input type="checkbox"/> _3	<input type="checkbox"/> _4	<input type="checkbox"/> _5

Q21 How often in the past 30 days has a family member or friend refused to ride with you, because of the way you drive?

- 0 ☐ Never
 1 ☐ 1-2 Times
 2 ☐ 3 or More Times

Q22 During the past 30 days how often have you been told that you drive dangerously?

- 0 ☐ Never
 1 ☐ 1-2 Times
 2 ☐ 3 or More Times

Q23 In the past 30 days, how often have you chased another car whose driver upset you?

- 0 ☐ Never
 1 ☐ 1-2 Times
 2 ☐ 3 or More Times

Q24 Please indicate how often each of the following has occurred in the past 30 days.

	ALMOST NEVER	RARELY	SOMETIMES	USUALLY	ALMOST ALWAYS
a. Asked someone else to drive in situations when you would have normally driven	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
b. Driven in the middle of the road (straddling two lanes)	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
c. Moved to the middle of the road or onto the shoulder to avoid road kill, litter, manhole cover, small potholes, or other small objects	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
d. Driven erratically in a tunnel or when driving under an overpass	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
e. Rerouted to avoid overpasses, tunnels, or littered roads	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
f. Moved to the shoulder to bypass slow or stopped traffic	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
g. Moved to the median or into oncoming traffic for any reason	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
h. Yelled or made rude gestures at other drivers	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
i. Paid excess attention to things on or around the road	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅

Q25 Please indicate how uncomfortable, anxious, or angry each of the following make you feel:

	NOT AT ALL	A LITTLE	SOMEWHAT	VERY
a. Driving near unexpected items on or near the road	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
b. Driving in ethnically diverse areas	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
c. Driving where there are small trucks or vans	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
d. Driving through tunnels or under overpasses	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
e. Driving in slow or stop-and-go traffic	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
f. Driving near parked cars	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
g. When other cars approach your car quickly	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
h. When your car gets boxed-in	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
I. When other cars pass you	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
j. Driving at dusk or at night	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
k. Driving at high speeds (e.g., over 55 mph) even if within the speed limit	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
l. When another car cuts in front of you	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
m. When a car pulls between your car and another car that you are traveling with	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
n. When stopped at a stop light	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄

Q26 Thinking about your answers to the above situations, how much are you bothered by the fact that you have this discomfort, anxiety, or anger?

- 1 ☐ Not at All Bothered
 2 ☐ A Little Bothered
 3 ☐ Somewhat Bothered
 4 ☐ Very Bothered

Q27 Thinking about driving in general, would you say that driving makes you?

- 1 ☐ Not Anxious At All
 2 ☐ A Little Anxious
 3 ☐ Somewhat Anxious
 4 ☐ Anxious
 5 ☐ Very Anxious

Q28 In the past 30 days, what weapon, if any, did you keep in your personal vehicle? (Check all that apply)

- a. ☐ Gun - Type: _____
 b. ☐ Knife
 c. ☐ Mace/Pepper spray/Taser
 d. ☐ Explosive device
 e. ☐ Baseball bat or club
 f. ☐ Other - Please Describe: _____

Q29 How much do you feel that driving habits from Iraq or Afghanistan have carried over into your driving in America? (If you have not served in Iraq or Afghanistan, please check this box ☐ and skip to Part 4 Below.)

- 0 ☐ None
 1 ☐ A Little
 2 ☐ Some
 3 ☐ A Lot

Q30 Which of the following statements best describes your situation: My driving after deployment is:

- 1 ☐ Much better than before deployment
 2 ☐ Somewhat better than before deployment
 3 ☐ About the same as before deployment
 4 ☐ Somewhat worse than before deployment
 5 ☐ Much worse than before deployment

Part 4: Driving In General

Q31 Thinking about driving in general, not your driving in particular, please rate how dangerous each of the following are:

	VERY DANGEROUS	SOMEWHAT DANGEROUS	NOT VERY DANGEROUS	NOT DANGEROUS
a. Driving much faster than the other cars on the road	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
b. Driving erratically in a tunnel or an overpass	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
c. Paying excess attention to things on or around the road	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
d. Driving through a red light	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
e. Driving down the middle of road (straddling two lanes)	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
f. Driving into the oncoming lane of traffic	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
g. Yelling or making rude gestures at other drivers	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
h. Keeping a weapon in the car	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
i. Moving to the shoulder to bypass slow or stopped traffic	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄

Q32 In the three years before your most recent deployment, were you in an accident while you were driving? (If never deployed, answer for the past three years.)

- 1 ☐ No
 2 ☐ Yes → If Yes, How many accidents?

Q33 In the three years before your most recent deployment, did you get a ticket for any moving violation? (If never deployed, answer for the past three years.)

- 1 ☐ No
 2 ☐ Yes → If Yes, How many violations?

Q34 Have you ever had your driving license suspended or revoked?

- 1 ☐ No
- 2 ☐ Yes

Part 5 Your Health

Q35 In general, would you say your health is:

- 1 ☐ Excellent
- 2 ☐ Very Good
- 3 ☐ Good
- 4 ☐ Fair
- 5 ☐ Poor

Q36 Has a health care provider ever told you that you had a brain injury or concussion?

- 1 ☐ No
- 2 ☐ Yes → Q36a: Was this associated with a deployment to OIF, OND, OEF? 1 ☐ Yes
2 ☐ No

Q37 Has a health care provider ever told you that you had a mild or moderate brain injury?

- 1 ☐ No
- 2 ☐ Yes → Q37a: Was this associated with a deployment to OIF, OND, OEF? 1 ☐ Yes
2 ☐ No

Q38 Are you currently experiencing any of the following problems that you think might be related to a possible brain injury or concussion? (Check all that apply)

- a. ☐ Headaches
- b. ☐ Dizziness
- c. ☐ Memory problems
- d. ☐ Balance problems
- e. ☐ Ringing in the ears
- f. ☐ Irritability
- g. ☐ Sleep problems
- h. ☐ Other - Specify: _____

 If you have not served in Iraq or Afghanistan - please skip to Part 6, on page 10

For this study, we must know who is likely to have mild traumatic brain injury or post-traumatic stress disorder from their most recent deployment to OIF, OND, or OEF. The next questions are commonly used to indicate this possibility. Your responses are untraceable. Please respond honestly. As with any question in this survey, you may skip any item.

Q39 Did you have any injury(ies) during your most recent deployment from any of the following? (Check all that apply)

- a. ☐ Fragment
- b. ☐ Bullet
- c. ☐ Vehicle (any type of vehicle, including airplane)
- d. ☐ Fall
- e. ☐ Blast (IED, RPG, Land mine, Grenade, etc.)
- f. ☐ Other specify: _____
- g. ☐ None → Skip to Question 40

Q39a Were you in a land vehicle when any of the above injuries occurred?

- 1 ☐ No
- 2 ☐ Yes

Q39b Did any injury received while you were most recently deployed result in any of the following? (Check all that apply)

- a. ☐ Being dazed, confused or "seeing stars"
- b. ☐ Not remembering the injury
- c. ☐ Losing consciousness (knocked out) for less than a minute
- d. ☐ Losing consciousness for 1-20 minutes
- e. ☐ Losing consciousness for longer than 20 minutes
- f. ☐ Having any symptoms of concussion afterward (such as headache, dizziness, irritability, etc.)
- g. ☐ Head Injury
- h. ☐ None of the above

Q40 Have you ever had any experience that was so frightening, horrible, or upsetting that, in the past month, you:

	NO	YES
a. Have had any nightmares about it or thought about it when you did not want to?	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂
b. Tried hard not to think about it or went out of your way to avoid situations that remind you of it?	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂
c. Were constantly on guard, watchful, or easily startled?	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂
d. Felt numb or detached from others, activities, or your surroundings?	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂

Q41 Were you ever told by a health care provider that you have or have had PTSD associated with your OIF, OND, or OEF deployment?

- 1 ☐ No
- 2 ☐ Yes

Part 6: About You

Q42 How old are you?

|_|_| Years

Q43 Are you...

- 1 ☐ Male
- 2 ☐ Female

Q44 Are you...

- 1 ☐ Married or Living in a Marriage-Like Relationship
- 2 ☐ Separated
- 3 ☐ Divorced
- 4 ☐ Widowed
- 5 ☐ Never Married

Q45 Are you of Latino or Hispanic origin?

- 1 ☐ No
- 2 ☐ Yes

Q46 Which of the following best describes your ethnic background:

- 1 ☐ Asian/Pacific Islander
- 2 ☐ Black/African American
- 3 ☐ Native American
- 4 ☐ White
- 5 ☐ Other: Please Describe: _____

Q47 What is the highest level of education that you have completed?

- 1 ☐ 8th grade or less
- 2 ☐ Some high school
- 3 ☐ High school graduate or GED
- 4 ☐ Trade school (Vocational, Technical, or Business School)
- 5 ☐ Some college or Associate degree (including Community College)
- 6 ☐ Bachelor degree
- 7 ☐ Graduate or professional degree
- 8 ☐ Other - Please Describe: _____

Please don't forget to give the enclosed packet labeled "Family/Friend" to someone who is familiar with your driving and has driven with you in the past 30 days.

[illegible]

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Driving Post-Deployment: A Survey of Family or Friends



Study Conducted By:
Program in Occupational Therapy
University of Minnesota

Sponsored By:
Department of Defense's
Congressionally Directed Medical Research Program

Your participation in this survey is voluntary and
you may choose to skip any item you do not wish to answer.

Part 1: Service Members Driving During the Past 30 Days

Q1 Thinking about the past 30 days, how often have you been a passenger while the Service Member who gave you this survey drove a motor vehicle (e.g., car, truck, SUV, etc.)?

0 ☐ I have not ridden with them → Skip to Part 2 on Page 5

1 ☐ Less than one day a week

2 ☐ 1-3 days a week

3 ☐ 4-6 days a week

4 ☐ Every day

Q2 In the past 30 days, approximately how many miles have you ridden as a passenger while the Service Member drove?

|_|_|_|_| Miles

Q3 When you have been a passenger with the Service Member, what type of vehicle were they driving? (Check one)

1 ☐ Motorcycle

2 ☐ Car

3 ☐ Mini-Van

4 ☐ SUV or Pick-Up Truck

5 ☐ Other - Describe: _____

Q4 Thinking about the Service Member in this study, how often do you think each of the following during the past 30 days. (If they work in emergency services, police, fire, ambulance, etc., please respond based upon their personal driving, not on work related driving.)

	0 NEVER	1 ONCE	2 TWICE	3+ TIMES
a. Received a warning from a police/trooper for a moving violation	<input type="checkbox"/> ₀	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃
b. Received a ticket for a moving violation	<input type="checkbox"/> ₀	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃
c. Hit another car or person while driving	<input type="checkbox"/> ₀	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃
d. Got hit by another vehicle while driving	<input type="checkbox"/> ₀	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃

Q5 In the past 30 days, how often do you think each of the following has occurred:

	NEVER	1-2 TIMES	3 OR MORE TIMES
a. A family member or friend refused to ride with this Service Member, because of the way they drive	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃
b. The Service Member has been told that he or she drives dangerously	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃
c. The Service Member has chased another car whose driver upset them	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃

Q6 In the past 30 days, how often do you think the Service Member has done each of the following. (If they work in emergency services, police, fire, ambulance, etc., please respond based upon their personal driving, not their work related driving.)

	ALMOST NEVER	RARELY	SOMETIMES	USUALLY	ALMOST ALWAYS
a. Made turns or lane changes without signaling	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
b. Intentionally stayed in the left lane of a multi-lane road or highway	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
c. Cut in and out of traffic	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
d. Driven through a stop sign	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
e. Driven through a red light	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
f. Intentionally driven very close to the car in front of them	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
g. Driven much faster than the other cars on the road	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
h. Driven much slower than the other cars on the road	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
i. Worn a seatbelt when in a car, truck, SUV, etc.	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
j. Focused intently on the people who are driving or riding in other vehicles	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
k. Been startled at common road sounds	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅

Q7 In the past 30 days, how often do you think that this Service Member did each of the following. (If they work in emergency services, police, fire, ambulance, etc., please respond based upon their personal driving, not their work related driving.)

	ALMOST NEVER	RARELY	SOMETIMES	USUALLY	ALMOST ALWAYS
a. Asked someone else to drive in situations when they would have normally driven	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
b. Driven in the middle of the road (straddling two lanes)	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
c. Moved to the middle of the road or onto the shoulder to avoid road kill, litter, manhole cover, small potholes or other small objects	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
d. Driven erratically in a tunnel or when driving under an overpass	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
e. Rerouted to avoid overpasses, tunnels, or littered roads	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
f. Moved to <u>the shoulder</u> to bypass slow or stopped traffic	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
g. Moved to the <u>median or into oncoming</u> traffic for any reason	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
h. Yelled or made rude gestures at other drivers	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅
i. Paid excess attention to things on or around the road	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄	<input type="checkbox"/> ₅

Q8 Please indicate how uncomfortable, anxious, or angry each of the following make the Service Member feel:

	NOT AT ALL	A LITTLE	SOMEWHAT	VERY
a. Driving near unexpected items on or near the road	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
b. Driving in ethnically diverse areas	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
c. Driving where there are small trucks or vans	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
d. Driving through tunnels or under overpasses	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
e. Driving in slow or stop-and-go traffic	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
f. Driving near parked cars	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
g. When other cars approach their car quickly	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
h. When their car gets boxed-in	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
i. When other cars pass them	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
j. Driving at dusk or at night	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
k. Driving at high speeds (e.g., over 55 mph) even if within the speed limit	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
l. When another car cuts in front of them	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
m. When a car pulls between their car and another car that they are traveling with	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
n. When stopped at a stop light	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄

Q9 Thinking about your answers to the above situations, how bothered would you say that the Service Members is by this discomfort, anxiety or anger?

- 1 ☐ Not at All Bothered
2 ☐ A Little Bothered
3 ☐ Somewhat Bothered
4 ☐ Very Bothered

Q10 Thinking about driving in general, would you say that driving makes your Service Member?

- 1 ☐ Not Anxious At All
2 ☐ A Little Anxious
3 ☐ Somewhat Anxious
4 ☐ Anxious
5 ☐ Very Anxious

Q11 In the past 30 days, what weapon, if any, did the Service Member keep in their personal vehicle? (Check all that apply)

- a. ☐ Gun Type: _____
b. ☐ Knife
c. ☐ Mace/Pepper spray/Taser
d. ☐ Explosive device
e. ☐ Baseball bat or club
f. ☐ Other - Please Describe: _____

Q12 In the three years before the Service Member's most recent deployment, were they in an accident while driving? (If they have not been deployed, please answer based on the most recent three years.)

1 ☐ No

2 ☐ Yes →→ If Yes, How many accidents? |_|_|

3 ☐ Don't Know

Q13 In the three years before the Service Member's most recent deployment, did they get a ticket for any moving violation? (If they have not been deployed, please answer based on the most recent three years.)

1 ☐ No

2 ☐ Yes →→ If Yes, How many violations? |_|_|

3 ☐ Don't Know

Q14 Has the Service Member ever had their driving license suspended or revoked?

1 ☐ No

2 ☐ Yes

3 ☐ Don't Know

Q15 Has the Service Member who gave you this survey ever been deployed to Iraq or Afghanistan?

1 ☐ No → Skip to Q16

2 ☐ Yes

Q15a How much do you feel that driving habits from Iraq or Afghanistan have carried over into your Services Member's driving in America? (If your Service Members has not served in Iraq or Afghanistan, please check this box ☐ and skip to Part 2 on next page)

0 ☐ No at all

1 ☐ A Little

2 ☐ Some

3 ☐ A Lot

Q15b Which of the following statements best describes your Service Member's driving, Their driving after deployment is:

1 ☐ Much better than before deployment

2 ☐ Somewhat better than before deployment

3 ☐ About the same as before deployment

4 ☐ Somewhat worse than before deployment

5 ☐ Much worse than before deployment

Part 2: Driving in General

Q16 Thinking about driving in general, not your own or the Service Member's driving in particular, please rate how dangerous each of the following are:

	VERY DANGEROUS	SOMEWHAT DANGEROUS	NOT VERY DANGEROUS	NOT DANGEROUS
a. Driving much faster than the other cars on the road	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
b. Driving erratically in a tunnel or an overpass	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
c. Paying excess attention to things on or around the road	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
d. Driving through a red light	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
e. Driving down the middle of road (straddling two lanes)	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
f. Driving into the oncoming lane of traffic	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
g. Yelling or making rude gestures at other drivers	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
h. Keeping a weapon in the car	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄
i. Moving to the shoulder to bypass slow or stopped traffic	<input type="checkbox"/> ₁	<input type="checkbox"/> ₂	<input type="checkbox"/> ₃	<input type="checkbox"/> ₄

Part 3: About You

Q17 Are you a licensed driver?

1 ☐ No

2 ☐ Yes → In the past 30 days, how many miles have you driven? |_|_|_|_|_|

Q18 What is your relationship to the service member in this study? (Check only one)

1 ☐ Engaged

2 ☐ Spouse or similar relationship

3 ☐ Brother or Sister

4 ☐ Friend

5 ☐ Parent

6 ☐ Other- Describe: _____

Q19 Are you...

1 ☐ Male

2 ☐ Female

Q20 Are you of Latino or Hispanic origin?

1 ☐ No

2 ☐ Yes

Q21 Which of the following best describes your ethnic background (check one):

- 1 ☐ Asian/Pacific Islander
- 2 ☐ Black/African American
- 3 ☐ Native American
- 4 ☐ White
- 5 ☐ Other: Please Describe: _____

Q22 What is the highest level of education that you have completed?

- 1 ☐ 8th grade or less
- 2 ☐ Some high school
- 3 ☐ High school graduate or GED
- 4 ☐ Trade school (Vocational, Technical, or Business School)
- 5 ☐ Some college or Associate degree (including Community College)
- 6 ☐ Bachelor degree
- 7 ☐ Graduate or professional degree
- 8 ☐ Other - Please Describe: _____

Q23 Are you in military service?

- 1 ☐ No → If you have any additional comments please provide them on the back cover.
- 2 ☐ Yes

Q23a What is your branch of the military service? (check one)

- 1 ☐ Air Force
- 2 ☐ Army
- 3 ☐ Marines
- 4 ☐ Navy
- 5 ☐ Coast Guard

Q23b Are you Active Service?

- | | |
|---|---|
| 1 <input type="checkbox"/> No → Q23b1 If No, are you: | 1 <input type="checkbox"/> Reserve |
| 2 <input type="checkbox"/> Yes | 2 <input type="checkbox"/> National Guard |
| | 3 <input type="checkbox"/> No longer in service |

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

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FRONT

If you would prefer to complete this survey over the telephone,
please provide your phone number below and the best time to call you.

|_|_|_|_| - |_|_|_|_|_| - |_|_|_|_|_|
Area Code Number

When to call: ☐ Mornings
☐ Afternoons
☐ Evenings
☐ During the Week
☐ On weekends

BACK

<BARCODE ID>